



ONLINE AUCTIONS AND SOCIAL MEDIA

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## **ABSTRACT**

With new forms of technology continually coming out, people have been creating more modern and convenient ways to find and complete tasks, and this leads to new jobs coming to life. In the wake of these changes, online auctions and social media have become more prevalent and have helped small businesses thrive and survive against bigger companies. This thesis examines how online auctions and social media collect information and how it is possible that both systems could be combined to improve both sites and business across both systems, which will affect the overall United States economy. The results show how actually forming this merging would be difficult, but there are possibilities that could lead to both systems becoming one in the future.

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## INTRODUCTION

The United States economy has improved steadily because business and services have adapted to a technology-centered society. Since the previous recession, which occurred in the late 2000s, the unemployment rate has been declining rapidly as it was recorded to be about 4.1 percent in October of 2017, which is a rate that has not been reached in sixteen years [1]. The average annual wage is now \$59,000, similar to annual wages in 2007 levels. [1]. The gross domestic product rate in the second quarter of 2017 was also calculated to have “expanded at an annual rate of 2.6 percent” [2]. This economic growth correlates with the increased use and advancements in mobile and personal technology. New technology allows for people to interact with one another at the touch of a button and has brought about a new communications age, whether for personal enjoyment or business reasons. Among these new communication methods are two technologies in particular: online shopping and social media. These modern advances in communication technology have given regular people more power than ever, including the means to report their feelings about daily events to a wide audience and to share what is happening around the world almost instantly. If the creation of a new form of communication is able to give individuals more power over their surroundings, then combining two large technological platforms, such as online auctions and social media, could further improve society and the economy.

This thesis will show how social media platforms and online auction systems can share basic information about their users and help the United States economy continue to

grow. If these different information systems work together, they could both improve the user experience and explore improvements in other functionality, including the protection of sensitive and personal information. Advertisements and other shopping sites could be shown to users if data from both systems allows advertisements to become more tailored to specific users. This in turn could lead to an increase in online shopping, entrepreneurship and customer satisfaction.

This thesis explores both online auction systems and the structure of social media platforms, the potential benefits of data-sharing between the two and the obstacles to doing so.

Section I goes into detail about what an online auction system is and the different types that exist. While there are quite a few websites that people know are auction systems, there are also other sites, such as Facebook and Yahoo!, that are also considered auction sites due to their having a similar nature to online auctions. It will also discuss how online auction systems have affected the U.S economy, both currently and in the past. This is important as it also brings up some legal disputes that have occurred due to online auction systems becoming more prominent in the business world.

Section II discusses how social media has impacted the United States society, from the psychology of users to small business growth, and how this has impacted the economy overall. The overall human factor that is taken into account in these online systems and how much influence regular users and consumers of social media have can change not only the system, but society as well. Knowing how social media systems work is crucial to



understanding how it is an entirely different system from those used in online auctions. It is necessary to know the benefits and risks that this online information system brings to our current society.

Section III considers the benefits and drawbacks to these separate companies and systems working together and how their influence can shape the economy. It will also consider how social media and online auction systems are already slightly working together, hold similar purposes and features, and the possibilities that this collaboration can go further than current practices. It is necessary that both online entities have an understanding of the risks and benefits of merging and sharing of user information and to make their own decision as to its long term feasibility. While this does establish the negative aspects of specializing in online business, it is then easier to explain how, currently, both systems can work together to prevent previous mistakes made and encourage the overall growth of the U.S economy.

Finally, the conclusion will speculate what might be expected to happen to the U.S. economy should both systems decide to work together. It will also include a method that these systems could possibly use so that they are able to use the data they both have so that they are effective on their respective websites. This will lead to a recommendation as to the next step both online auctions and social media platforms should take in order to work together to integrate their systems.

# ONLINE AUCTION SYSTEMS

## What is an Online Auction System?

Since online auction systems were reported to have “over 40 million participants in some 30 countries by mid-2002” [3], it is likely that many readers have accessed an online auction at some point, whether it was on a website that is better known for its auctions or not. To put it simply, an online auction system is just like a regular auction, where a seller puts an item up to be sold at a certain price, and then the price escalates higher with each new bid until the time runs out with the highest bid as the winner, but with a few differences. Since the auction is taking place on a particular website, users must register on the particular online auction platform in order to engage in buying or selling on that platform by using a name that is unique to the user [3]. Unlike in traditional auctions, sellers can determine how long each of their auctions can last, as online auctions normally can take place between a range of a couple days or a week, sometimes even more. Another option that online auction systems provide is that the system itself will set a minimum amount that the price can increase by based on what the highest bid for the item is. And lastly, a proxy bidding system allows bidders to avoid constantly staying online by setting a maximum amount they are willing to pay and alerting them when that limit is exceeded [3].

## Online Auction Systems vs. Traditional Auctions

An online auction system is very similar to its traditional predecessor; however, a few key differences have allowed for these modern auctions to become more popular in today’s society. One difference is that “online auction [sic] solve general problems like market price

discrepancy due to asymmetric information” and removes the time, space, and location issues that people normally have to deal with in traditional auctions [4]. This makes the overall quality of the transactions better since they are more transparent and fairer in their trading opportunities [4]. Both traditional and online auction websites also include a small fee during the transaction process. So in a sense, the seller does not get all the money that the consumer uses to buy the merchandise, but both auctions usually have a certain set of standards so that sellers still get a large portion of the bid price. Unlike traditional auctions, an “online auction website only facilitates the transaction and never takes possession of either the goods or the payment” [5]. While some auction sites, like Amazon, do carry products that they offer, there are other sites like eBay that only display what their users decide to auction off. So auction sites are more like mediators for buyers and sellers to meet and exchange goods.

### **Increase Use and Spending on the Internet**

The rise of online auction systems can also be attributed to the advancement of mobile technology and a slow rise in mobile spending. McKinsey projected that spending on media, by using mobile devices like smartphones and tablets, would increase by 14.9 percent in 2015 [6]. However, it was found that this was an underestimate as the actual increase was 22.4 percent, which made the total digital spending 44.6 percent [6]. During the earlier years of online auction systems in 2002, a total of US\$14.87 billion was reported for transactions on one of the most popular online auction websites, eBay [5]. In that same year, over 12 million products were listed across 18,000 categories on any given day [5]. This much use in just one year, even from this early on in online auctions popularity, shows how much online auctions had begun to influence society and how this method was already proving to be very

effective in modern commerce. However, these businesses must attribute their success to the loyal consumers who continue to use their sites and applications to achieve their own goals. They need to understand and know how their consumers react to the design of their sites, so that consumers, whether they are buyers or sellers, can easily use the application, while at the same time the website itself remains unique in its style. For this to happen, it is necessary for businesses to know the different types of online auctions and understands what users look for in online applications to create a successful online auction system.

### **Auction Types**

When developing an online auction system, one must think of what type of auction system would work best. This is determined by whether the system is based on how the winner is determined, the number of sellers and buyers in the auction, and whether or not the bidding price is made open to the bidders or is sealed. This is not to say that certain auction types are better than others, but it is important to understand that “each auction type has advantages depending on the response time, privacy, avoidance of speculation, fairness, and sale price” [5].

If based on the winner, the auction can either be a single attribute auction or multi-dimensional auctions. In a single attribute auction, only the price offered for the good is important, but a multi-dimensional auction can be focused on many aspects, which range from quality of the item, to shipping costs and expected delivery date [7]. An example of a multidimensional auction is Amazon, since it has various options for the same product, but it could be the quality of the product that sways a buyer, such as if the item is in new or just

acceptable conditions or if the item will be delivered faster and/or cheaper from one seller than another.

If based on the number of users, both in buying and selling aspects, then the auctions become either forward or reverse. If it is a forward system, then the auctioneer decides which bid wins [7]. In a reverse system, the buyers and sellers bid and the auctioneer matches buyers to sellers [7].

Online auctions that are based on the bidding price's openness are either called sealed-bid or open. In a sealed-bid auction system, there are also two subdivisions, called first-price and second-price. In the first-price subdivision, sealed bids are submitted to the auctioneer at the same time, and the auctioneer or arbiter of the auction privately certified the highest bid as the winner [8]. In the second-price, the bidder with the highest bid still wins, but is only required to pay the second highest bid. For example, if the top bidder went all the way to one hundred dollars, but the second highest bidder went to ninety-five dollars, then the top bidder would only need to pay ninety-five dollars. This option solves the problem of first-price, sealed-bid auctions, which allows the possibility that the auction can make high-paying bidders feel dissatisfied, and can make the auction become a lowest-bid war between bidders, rather than each individual bidding the most that they can afford [9]. Auctions that use first-choice are not good for the sellers, who want to make the most profit or for consumers if they bid too high. Whereas second-price is much like a function available in eBay, where their users can select a maximum bid, so that they could set what they could afford to spend on that particular item, and this bid could determine if they won or not.

The open auction system also has two subdivisions, called Dutch and English

respectively. In the Dutch version, “the auctioneer decreases the current price until one bidder can afford it and is the winner of the auction” [8]. This option is usually used if the seller needs to get rid of a particular item and can be seen when sellers offer deals or sales on their items or even with the “Buy Now” option that is present on eBay. The English version, which is a reverse of the Dutch version, allows the auctioneer to increase the bid price as long as “one bidder’s bid price is higher than the current price” [8]. The English system is the most common auction system that is used when developing software for mobile devices, since it is very similar to standard auction-house procedures [7]. The best example of this is eBay, as it not only uses a traditional auction design in its online system, but has also become one of the biggest online auctions sites across the world. However, it is not impossible to create an auction system based on the other types of auctions mentioned. There are also auctions that are focused around the consumers. In order for the auctions to do this, the systems primarily focus on “price competition in a structured negotiated format of minimal bidding price, incremental bidding price, and ‘buy now’ price options” [5]. This can be found in sites such as eBay, which have several, different options. Sellers can either sell their items in a bid, set a price that the consumer cannot change, or allow consumers to offer a lower price. A final option, which is sometimes present in bidding auctions, allows the seller to offer a set price that a person can take to automatically buy the auctioned item, but it usually is higher than the starting bid price and buyers will normally not use it, unless the bidding price goes above this set price.

An auction system that is not like regular auctions, but has traits that would make it an auction, is the system that Uber, a popular ride-sharing service, uses. This particular

application “allows passengers to request rides from private vehicles operated by drivers who utilize its mobile application” [10]. In order to use Uber, “users download the Uber application on their devices, set a pickup location, request a ride, wait for a driver to accept, enter the address or name of the destination, and anticipate the driver’s arrival” [10]. The fare-payment system is calculated by Uber and, since it is not under the taxi industry’s rate regulations, it can change the prices based on the weather, traffic and holidays. Uber also offers a rating system, which not only allows riders to rate their drivers, which can warn future riders if a particular driver was not very good, but drivers can also rate their riders, letting other drivers and the Uber company know if the rider displayed any bad or concerning behavior. If a user were to receive a certain number of bad reviews, then the company can cancel their account and ban them from the platform.

While there are other types of auctions, those auctions described above are the most well-known and tend to be the most used or are used as a base for certain auction systems. Despite the various amounts of auctions, all auctions share one common attribute: their reliance on consumers to continue to use their business and services in the future. In order to do this, auctions must be able to satisfy their customers needs and make it easy for them to return for future transactions.

### **The “Sharing” Economy and Consumer Satisfaction**

With the progression of the modern age and the creation of the Internet, many services began to appear that modernized the ‘sharing’ economy. This economy has been around for a long time, but was often a way for humans to “utilize any item or service without obtaining any ownership” [10]. However, online platforms have given anyone, with

access to the Internet, the ability to do business from anywhere in the world and with whoever they choose to work with. It does not matter whether a user is a provider of a service, seller of a product, or a shopper, as these systems function to provide satisfaction to all parties of the transaction and modernized version of the “sharing” economy.

A good example of this is the Uber app, as they are “a pioneer in the sharing economy” [10]. Some users download the app to find and request a ride service from the nearby drivers available on the application. However, other users become the drivers used in this ride service in exchange for monetary gain from those that use their service. In this way, Uber has become one of the applications to revolutionize the ‘sharing’ economy for the modern society. It connects people with the click of a button, and exchanges money and services across a variety of distances.

Since online auctioning allows people to transact business from the convenience of their desktop computer, it also makes sense that this same kind of convenience is expected from the auction systems design [5]. In terms of computer systems, an online auction system “can be classified as web-based information systems and the bidders (as well as the sellers) as the system end-users” [5]. Information systems have always considered user satisfaction as an important factor in determining how successful they are. Since many of these systems rely on satisfaction, the data has been split between user information satisfaction and end-user computing satisfaction.

User information satisfaction “refers to the extent to which users perceive that the information system available to them meets their information requirements” [5]. This level of satisfaction is a user’s perception on how effective and manageable the information system is



for users [5]. User information satisfaction can determine whether or not a system is a failure or success based on how well consumers can use it and if the design will incline them to return again for a future purchase.

End-user computing satisfaction measures “the affective attitude towards a specific computer application by someone who interacts with the application directly” [11]. It is evaluated based on both the primary user, who “makes decisions based on the system’s output” [11], and the secondary user, who interacts with the application software to enter information or prepare output reports [11]. The level of satisfaction is determined by looking at several factors, which include “accuracy, reliability, timeliness, assistance, adequacy, accommodation, communication, access, cost and environment” of the entire auction process [12]. While usually focusing on the primary user, the secondary user’s information can still be useful for gaining more information on what parts of the software have the most ease of use.

The data combination that comes from both of these satisfactions is usually able to measure three aspects of information systems that can predict how successful the system is doing on the Internet, whether it is by how well the users are able to use the system or how many times bidders are able to win. These aspects include, “a high degree of face validity ...development of reliable tools for measure...conceptual weakness and unavailability of other measures” [5]. It is then that companies can focus on nine factors of bidder satisfaction in order to build the framework for their system [5].

### **Framework for Bidder Satisfaction**

One of the parts to consider is the content of the auction site as a whole. Usually

when talking about content, this refers to the design of the site and “the relevance and completeness of website content” [5]. Users tend to stay away from sites that are either too cluttered with information or have too many details that either confuse buyers or lower their desire for the product that they are looking at. Therefore, auction site creators must make all product information, including any transaction or shipping conditions and seller information, easy to read as this not only brings the user satisfaction, but it also gives them a level of trust towards the site as they believe that they are making a good decision.

Another aspect to consider is the format of the auction, since this is how the information on products is presented and laid out to the potential consumers. Due to the nature of online shopping, it is safe to assume that the same product is being sold on numerous websites. However, aside from differences in price, what may break or make a deal for a consumer would be how easy or difficult it is for them to make a purchase on one website compared to another. Is there a time limit when trying to submit billing and shipping information? Is membership required to buy products on the site? Is it clear where users must click to get the exact product that they want? These are the questions that auction sites must consider since “graphics, texts, and layouts can make an auction site attractive and useful” [5]. This particular construct can increase both bidder satisfaction and the interactivity that takes place at the auction site.

The third construct on the list is the ease of use, which measures how user-friendly an online auction website is. While this mainly pertains to how easy it is for users to navigate and use features that are on the website, its also refers to how many times a user is able to win their desired bids. While users will not always win every auction they participate in,

never winning creates a negative experience for the user and they will be less inclined to return to the auction site. Websites can't help a user win an auction, but it is still beneficial for the site to be as user-friendly as possible since these positive aspects may satisfy a consumer enough to return to the site, even if they did not win their initial bid.

When it comes to auctions, it is very crucial that bidding time is constantly updated for all bidders. A good example of this is with eBay, as they not only keep bidders informed on how long they have until the auction ends, but they also give out information on exactly what time and day the auction will end depending on the user's location. This "real-time or timely information helps bidders know the status of their bid," no matter how much time is left in the auction [5]. This allows the system to perform to optimal levels and bidders will not experience stress and frustration from not knowing whether their bid is winning or how much longer they have before the auction ends.

As mentioned earlier, when dealing with a multitude of various internet businesses, it should be expected that many websites will have the same products. However, what can separate these sites from each other is the variety of products that they offer. If a website wishes to only have a certain type of product on their site, such as only furniture, toys or clothes, then that is adequate as this can help them establish their own brand. However, for other auction websites, "product selection, information, prices, and presentation are important factors for e-business" [5]. When the products are organized into different brands and are listed in an easily viewable way then this allows bidders to "evaluate the bidding price among the several listings of the same product and set a maximum bid price for themselves" [5]. Product variety can bring more potential buyers and allows for more people

to engage with the auction site and possibly suggest the site to other people they know, bringing in more revenue and customers.

This next construct, which is the actual transaction, only involves the seller and buyer. Whether it be the product getting to the buyer from the seller or the money agreed on getting delivered to the seller from the buyer, auction sites have to adhere to certain guidelines and rules in order to “safeguard the economic interest and timeliness of exchange of both the seller and the winner” [5]. This not only leads to both parties gaining what they desire, but brings a great sense of satisfaction and trust to the site. Even in the cases of a product not being exactly what they expected or perhaps it was damaged while in transit to the buyer, if return and refund policies are put in place, then, while the sellers may not necessarily win out in this case, the buyer may still be satisfied enough to return to the site as long as this occurrence does not happen too many times.

When it comes to considering what users’ opinions of the system are, it is necessary to look into user satisfaction with repeat purchases, visits to the auction website, and surveys left by the users on the performance of the auction during their purchases. If websites want to get the most out of this information, they have to examine the entire process that the consumers go through in order to accurately see if their customers are being truly satisfied by the products on the auction site and by the system being used. If this measure is predicted correctly, it is also possible to predict the site’s overall net benefit, which can be the biggest determinant in an online business’s success [5].

With net benefits, it is able to show how e-commerce affects all the components of an auction system, whether it be a customer, supplier, market or even society as a whole. Net

benefits take into account how much “cost savings, expanded market, incremental additional sales, reduced search costs, and time savings” an e-commerce auction system provides to its customers and how successful this makes the business [5]. The benefits usually go to the buyers who were able to buy the product they wanted at a price that they found reasonable or lower than what they had expected. This is also beneficial to the business since this will usually bring consumers back to buy more from the site, since they were able to save money and find the product they needed.

The aspect that is probably the most important to all bidders and online consumers is the security that the auction system provides in order to “protect bidders’ personal information and protecting the bidders from fraudulent sellers” [5]. If a site wishes to build long term relationships with a consumer or bidder, then it needs to have a tight security that users can trust [5]. If a bidder should feel like their personal information has been compromised on the auction site, this will usually cause the user to boycott the site entirely to prevent a similar incident from happening. To understand the extent to which security and trust is needed within online auction systems, businesses need to see exactly how online auctions have changed how consumers behave and think.

### **Online Auction’s Psychology and Trust**

While there are billions of people who use online auctions on a daily basis, this also increases the need to have an online security system that can protect any user’s information. This information can range from the security of the goods and services on the website to the personal information of every user on the application. It is important to address these concerns, as a lack of security or trust can turn people away from any application.

The specific concerns when it comes to trusting online services, which will be addressed later, are usually split between issues dealing in reliability and security. Reliability often deals with the “credibility and trustworthiness between online vendors and customers,” which can cause distrust to increase should there be any fraud or hacking on either the seller’s or buyer’s account [13]. On the other hand, security issues can occur either with the protection of personal and confidential data or the security of payment systems requiring credit card numbers” [13]. Both of these are concerns that usually arise when dealing with international and domestic online services.

One concern is actually between the seller and the consumer. This is due to the nature of online auctions, as there is no mediator between the seller and consumer which brings up concerns since neither party knows anything about the other. As such, the sellers and buyers must “make their own judgements on the authenticity, quality and value of the item, and determine when to place bids” [14], not to mention determining how trustworthy a seller or buyer is. This leads to the possibility that consumers can be paying the price of a high quality good, such as a sports car or rare item, and in turn getting a poor quality item or, in the worst cases, nothing at all.

One way for the seller and consumer to gain a level of trust between themselves is by using a rating and review system. This can best be seen in the eBay application, in which “the buyer and the seller in a transaction can rate each other” [15]. For the customers, this can help them pick a seller that is not only trustworthy, but delivers the quality products that they show on their account. As for sellers, it gives them the trust that their customers will not only pay for the item they want, but they will also leave fair reviews on the sellers. Other

online auction sites, such as Amazon, may have a similar style of ratings, but not all online auction systems are the same when it comes to relaying important information to potential consumers. Regardless, these ratings systems are able “to collect users’ feedback regarding their shopping experience to assist potential buyers for selecting suitable merchandise and trustworthy sellers” [15].

This rating system, while somewhat basic and simple, relays information that is very helpful for customers to determine whether they will make a purchase or not. It will usually consist of “a judgment of the behavior of the respective auction partner as either positive, neutral, or negative, accompanied by a short comment” [3]. These ratings are then displayed on the user’s account, and other users can see how another user is rated as both a consumer and seller. This system is crucial for a lot of auction systems as it can determine a platform’s overall performance and initial success, especially since online auctions are infamous when it comes to frauds. When studying the comments left by users as a rating, it was found that “positive comments, accounting for 97% of all ratings, are usually general in nature (“No problems”) and are therefore less informative than negative comments” [3]. This has led to users looking at negative comments more often than positive, as the comments on these ratings tend to give users a better look into how a seller or customer is and if they will pull through on their end of the auction.

However, a problem that occurs because of the rating system is that “many fraudulent users attempt to tamper with the reputation system to obtain a high reputation score” [15]. This is due to how accounts on auction system sites are very easy to make, which also allows users to have more than one account. While some auction systems try to rectify this by only

allowing for an email to have one account, the e-mail system also makes it easy to make another e-mail account. So this method is not very effective more often than not. Some people use this to set up fake auctions before proceeding to buy those items themselves in order to give their accounts many good reviews. This tricks other consumers into believing that the seller is trustworthy, when in fact the seller may not even have the items they advertise on their site.

The last major problem that many, if not all, online auction systems have is the possibility of their being a breach in security and privacy. It is very important that auction systems have a security and privacy system that will not only protect the user's items and services, but also any of the user's personal information. However, with the advancement in technology, the security of auction systems must always be kept up-to-date as hackers are able to find new ways to get around certain systems and firewalls if it is not maintained and updated on a constant basis. An example of this is the recent Uber scandal, where two hackers broke into the company in late 2016 and stole personal data, including phone numbers, email addresses, and names, of 57 million Uber users [16]. This also includes the driver's license number of 600,000 users. This was bad not only because they lost a lot of their users' private information, but they did not bring up this hack until a year later and tried to pay off the hackers, so that they would get rid of the information; However, they did not have a way of truly knowing if the hackers actually deleted the information they had, so it is possible the hackers could still be holding the personal information of over 50 million people.

While having a perfect security system is almost impossible, it is still important to



make sure the site user's information is not at risk of being traced. For example, if a security system lacks unlink-ability, the "user's privacy can be leaked by monitoring the communication of system and linking the captured information" [8]. One way this can be done is if the hackers get the public key of the bidder from the website during the bidding process; If they can then link it with the correct IP address, this can tell the hackers what the consumer bids on and trace their bidding history [8].

Any application, especially online auction systems, must be wary about possible security attacks and frauds on their websites. While it may not be possible to have an unbreakable security system, as long as it can build trust between the application and the user, allow users to build trustworthy relationships with other users, and prevent the tracking of a user's transaction history and personal information, it can still be a very useful system.

### **Impact Online Auction Systems Have on the U.S. Economy**

E-commerce, or electronic commerce, had begun its rise to power when Congress finally permitted the general public to go online in 1992 [17]. It was not too long after this that businesses began to move on to the Internet to see the new prospects that the platform opened up for them. These retailers soon saw the advantages to opening stores through the power and expansiveness of the Internet. Online sellers found that they only needed a large space for storage and a website in order to make their stores available across the world since the Internet allowed for store owners to not worry about advertising and expanding their business further through traditional means. Online retailers pride themselves on carrying a selection that would be physically impossible for traditional retailers to carry [17], since

many off-line stores have a much smaller storage space than those that do business on the Internet.

With these advantages, e-commerce became a powerful entity within the economy around the early 21<sup>st</sup> century, growing at an average yearly rate of 18.1 percent [17], and then in 2011, it began to increase by 16.4 percent every year, showing how much e-commerce's growth rate had exponentially increased and how it plays a large role in the retail business. However, e-commerce has also impacted the economy negatively due to online auctions not being able to be taxed by the government.

### **Sales Tax Issues: States vs. Online Businesses**

Sales tax is important to state and local governments as this is one way both are able to get revenue. Sales tax, in particular, is “the largest single source of tax revenue for states, accounting for nearly a third of all tax revenue and approximately 14 percent of total revenue” [17]. However, online auctions and e-commerce are not taken into account with this, due to the fact that online purchases are not required to charge sales tax. Courts have ruled that online auctions are similar to mail-order catalogs, since they both are able to “circumvent sales through remote purchases” [17]. So local and state governments are unable to collect this extra revenue despite the massive presence of e-commerce in the business industry.

Two court cases brought up the issues with taxing online auctions: *National Bellas Hess, Inc. v. Department of Revenue of Illinois* and *Quill Corp. v. North Dakota*. In both cases, the court ruled that since the state only made contact with either business through a mail service, then the state is unable to tax the online business. However, the difference

between the cases was that the Bellas Hess case ended with the Court deciding that Illinois needed to prove that the company had a physical presence in their state. The Quill Corp. case went all the way to the Supreme Court and they ruled that while the Due Process Clause could be satisfied, Quill Corp. was still able to win due to the fact that the Commerce Clause “prohibits states from enacting laws that might unduly burden or inhibit the free flow of commerce between the states” [18]. This ultimately meant that it was almost impossible to tax online retailers, as this would be unconstitutional.

While it is possible that states could collect taxes from online auctions, it would require each state to change their sales-tax code. However, some states did not see this ‘solution’ as a benefit to their economies, as they “determined that the cost of altering their sales-tax codes to comply with the SSUTA would negate any gains they may receive from collecting taxes from participating retailers” [17]. There are ways that states could collect sales taxes from online retailers without the online sellers having to comply with all the 9,646 different tax jurisdictions, but it would require the intervention of the federal government and, even then, it would be a long and arduous process [17].

# **SOCIAL MEDIA**

## **Communication through Social Networks**

When discussing social networking sites, it is important to recognize what makes these sites so attractive to our society and how it has affected today's society when it comes to daily tasks. For example, Facebook is not only a well-known social media site, but with over 900 million users, it is the most widely used social networking site in the United States and around the world [19]. On this platform, not only can people create profile pages to establish themselves and make it easier for people they know to find them, but they can upload photos and videos and attach a comment or small paragraph that explains where or what they are doing in the photo or even just how they feel currently. On Facebook's page, it states that its mission is to "give people the power to build community and bring the world closer together" [20]. Considering how many people are currently users of the application around the world, it is no wonder that they have been able to accomplish this goal. What they post on the site, or even what they 'like,' can influence what Facebook shows them in their user feed and what groups Facebook might recommend to them.

Another popular social networking site is Twitter, which has about 140 million users [19]. While it is very similar to Facebook in that it allows its users to post photos and videos, they only allow their users 140 characters to describe their post. Thus, users must figure out what exactly they want to say since they have a very limited amount of space to articulate their thoughts. Twitter's value page states that they "believe in free expression and think every voice has the power to impact the world" [21]. This can explain why they chose to

only allow their users to type in 140 characters per post, as it shows that even a small voice can have an impact on their platform.

There is also the Pinterest website, where users create “boards” based on topics of interest such as beauty, cooking, or cute animals [19]. If Pinterest users also have a Facebook, Twitter, Google+, Gmail, Yahoo!, or Microsoft accounts, then they are able to link that account to their Pinterest account. This also helps people see that their friends or family are on Pinterest and this could lead to more users for the social network. Pinterest also uses similar features as Twitter and Facebook, such as following people and liking posts. Unlike the previous social networking sites listed above, YouTube allows its users to upload videos and share content from across the world, which has made it one of the biggest video-sharing services on the Internet [19]. YouTube is useful to casual and regular viewers because there are a videos on almost anything located on the site, whether it is cooking tutorials, craft videos, or repair instructions. In this way, users are able to come up with and share solutions to problems that other people might be having, and then these users do not need to spend money paying for service to solve their issues. Besides these, it is also a way for people to articulate their thoughts through the use of their voice rather than words and provide entertainment for people across the world. YouTube’s ‘About’ page states that their mission “is to give everyone a voice and show them the world” [22]. In a sense, YouTube allows for the voice of millions of people around the world to be heard by the millions of other individuals that use the social network.

Another way people communicate with each other is through online gaming, which has become more commonplace in recent years. While gaming can be played by just one

individual, with newer technology, more and more players are able to interact with each other while playing their favorite games [19]. Because of the nature of online games, meeting people from different countries or ages is quite easy. Community-like games such as Club Penguin and even battle strategy games such as League of Legends have developed online chat features that allow for players to be able to actually chat with each other and, in some cases, players can actually see what the other looks like if a webcam feature is added.

Music has always been a way for people to communicate with each other, and it is still the same within our modern society. Popular music sites, such as Pandora and Spotify, allow their users to be able to find millions of free songs at the touch of a button [19]. While each have their own quirks for their applications, such as with Pandora limiting the user to a pre-made list of songs, while Spotify allow their users to listen to specific songs, both are able to also tell their users what their friends are listening to, keeping them in communication with each other while also introducing users to songs they may not have heard before. Even now, more apps are being created that use music as a way to communicate, with the best example being the popular app musical.ly, which allows users to dance or express themselves with a small clip of a song.

And lastly, in the years before Facebook, there was the online phenomenon that was Myspace. It was a social networking site that was very popular worldwide for a while after its release in 2003. Just like platforms that would come after it, Myspace offered a means to interact and communicate with people from anywhere, but its popularity quickly fell with the rise of Facebook in 2004, only a year after Myspace had launched [19]. Even though it is still around, it is definitely not as widely used as sites such as Facebook, Twitter, Snapchat, and

Instagram. When looking at its initial success and popularity, it could be considered that Myspace was the beginning of the trend of online social networking that extended past just e-mails.

With all these examples, it is understandable that social networking, along with the rise of the Internet, has changed society and how people are able to communicate and stay in touch with each other. It is not surprising that social media would eventually make its way into the business and marketing aspects of society, since both of these jobs require not only communication within their respective companies, but connections outside of the company so that the businesses can expand. But is it possible that social networking expanded these ties even further?

### **Social Networking Influence on the Online Market**

As social networking technology continues to advance, so has its overall reach across the globe, as many of these sites have become globally popular or, at the very least, are popular in the country they were made in so that the residents of that country can communicate from anywhere. They go beyond just a means of communication and have become a way for people to make a living just by posting content of whatever they want to share. When looking into s-commerce, or electronic commerce focused on social business, and “the role of social support and relationship quality in s-commerce”, a 2016 study by Hope and Barker was found that social media information and emotional support increased a user’s desire to return back to the social networking site and want to continue using social commerce [23]. In particular, within the over 360 million population of North America, the

International World Statistics reported that there were over 320 million internet users in 2017 [24]. In 2015, about 67 percent of the United States population were active social media users, which was determined by if the person had used social media within the last six months. [25]. Bolat, Booli and Wright (2016) focused on the capability between businesses and mobile social media and found that “expansion and popularity of social media are primary reasons for businesses to use mobile devices to access social media sites anywhere and anytime” [26].

Social media has provided business for many different kinds of entrepreneurs, and this has impacted not only society, but also has completely reshaped the business industry and the general mindset of human society. In particular, it is very interesting to see how online shopping has changed how people decide to shop offline and online.

### **Psychological Impact**

Social networking has become more than just a means of communication, especially for those in the younger generation, as creating a social media account is a way for them to develop and understand their identity. These sites allow them to go on their own journey of self-discovery to determine what kind of person they want to be [19]. They become able to display any information they choose to show and read about what their peers think of this information. Even their peers’ responses to these posts can heavily influence their future posts and behaviors as they learn about what is acceptable and unacceptable in their demographic.

This new sense of freedom can create a pathway to discovering one’s personal



identity and could even possibly predict future behavioral problems. However, because of the nature of the Internet, it is hard to discern whether a post was made as a joke or should be taken seriously. For example, if someone were to post about drinking alcohol, yet the age that is linked to their account states that they are not at the appropriate age to be drinking, this could suggest that the person is drinking, or is thinking about drinking, illegally, or they are just joking about it to get recognized by their peers more. In some studies, these kind of behaviors occur because technology encourages users to speak their minds and to express themselves as an individual [19]. This is even more so for those individuals that are already social when they are off the Internet, as they are likely to repeat the same behaviors when they are online. When considering if a post is true or not, people tend to look into the user's previous posts to see if the same kind of behavior had been posted in the past. If there are multiple instances of similar risky behavior, then it can be assumed that this is how the person is choosing to behave or wish to portray themselves.

Social networking has also expanded to the point that it can influence a person's decision to buy an item. Kaplan's study of mobile social media defined of it as "any marketing activity conducted through a ubiquitous network to which consumers are constantly connected using a personal mobile device" [27]. It also gives online businesses data on their consumers when they are offline, as these applications make it easy for companies to "obtain general statistics such as number of check-ins per time of day, gender, or age group; as well as individual ones, such as which customers have checked in most often or most recently" [27]. From a marketing standpoint, social media is a big influencer in consumer decisions and behaviors. An example of this is consumer reviews on products or

even the sellers of the products. How a consumer rates a product or what kind of comment they leave to describe their experience could tell a future consumer whether or not to buy that product or to shop from that specific seller. Therefore, consumers' judgements on each other are not only valuable for the website, but also maybe deciding variables for other potential consumers. This is even more so when people shop using social media websites, as studies have shown that these users "are more heavily influenced by social interactions in their decision to accept s-commerce (social networking sites) than conventional e-commerce" [23].

Other studies have also shown that users of social media and other interactive online media "produce value and surplus value in two ways" [28]. The first option is the media platform looks at the informational content that their users post on their website, before selling this information to advertisers. The media keeps track of what their users post or talk about and then transfer this information to advertisers as valuable knowledge on what people are talking about or could be interested in investing in. Advertisers also get to learn which customers would enjoy seeing their advertisements, which might then lead to an increase in value and surplus value. Social media platforms have a way to track to see if certain users are stopping on certain advertisements or if the user just gives it a quick glance and never looks at it again. They use this information along with any information they can get from what the user "likes" or posts in order to determine what advertisements best suit that particular user and interest them enough to at least look at the shopping website. This method allows businesses to be able to tell not only the age group that is interested in their products, but if their advertisements are catching the eyes of the social media audience.

## **Small Business Impact**

When talking about business and social media, it is important to understand why and how it is that businesses began to use it in the first place. This can be attributed to the increase in the amount of mobile technology used during the early parts of the 21<sup>st</sup> century [26]. The “expansion of social media applications beyond personal interaction and information exchange towards commercial opportunities for firms” is another reason for businesses to recognize the importance of social media [26]. Once both of these developments occurred, businesses realized that they could no longer just have social media accounts, but would need to actually use them to expand their companies into the virtual realm. But for this to happen, businesses had to rethink and change the business practices and strategy that they had previously used so that they could see a positive spike in profit and customers.

When developing these new business practices, this also meant that developing and maintaining relationships through social media would also be changed. This is due to the goal of many businesses wanting to use social media as a way to attract new customers and future investors since “social media offers a unique opportunity for social interactions both for businesses and individuals” [30]. When consumers were asked about in a 2011 study by Michaelidou, Siamagka, and Christodoulides what they thought about businesses that used social media, 93% of social media users believed that companies should have a social media account, and 85% believed that companies should use these social media accounts to interact with old and new customers [29]. Relationship management of social media capabilities is now considered to be a critical practice as particularly in the mobile context opportunities to

access social media anywhere anytime add to a flexible and efficient communication process [26].

Social media can also help companies gain a very important trait when running a business: creativity. Businesses began to realize that social networks were the perfect places to come up with and share new ideas, providing a cost-effective service that became very necessary to expand businesses [30]. In fact, when it comes to cost, mobile technology and social networks are very cheap and are fairly easy to learn, so there is less of a need to hire specialists, which makes both systems cost-efficient. As for competition between businesses, social media contributes to this as businesses use the service to not only watch over and track their competitors, but also to see what their current and potential followers are demanding so that they can keep up with trends. Businesses use the information they have gained to boost creative thinking and this helps individual companies stand out from each other and attract new clients and customers with the new products and advertisements that the companies come up with from their data searching [26]. Creativity becomes an important skill that is needed when trying to make content within social media that attracts new customers and is still able to show what the company is about. It can also demonstrate how well the business is able to integrate social media into its business practices.

Small businesses have also found that social networking sites are not only a way to communicate with other business owners, but can also help spread the word about their businesses and help increase the overall chance of their businesses surviving during the first few years of operation. Social media helps companies to discover the brand they want to be known for, especially since many companies use social media as a “branding tool where

businesses promote their products and services” [26]. Unlike larger companies, small businesses are usually not able to afford the amount of money necessary to have an extensive marketing and communication budget, so they take advantage of digital communication tools such as social media, to develop cost-efficient yet effective marketing and communication strategies for small businesses in emerging markets [31]. In fact, for small business owners or those wanting to open their own businesses, it is necessary to “embrace social media channels to engage with various audiences and potentially find new business partners and customers” since social media’s ease in accessibility takes time and location issues out of the picture [32]. This has given small businesses more power since they have a place that allows them to be seen and heard by more of the general public. However, this can also kill a business just as much as build it up if the small company’s actions are cast in a negative light by the majority of the populace. Additionally, these businesses have to commit a lot of time to manage their social media presence and maintain a strong social media strategy that shows people what the company’s intentions are and their goals for the future of their business.

### **Steps to a Successful Business Strategy**

While there are different strategies to choose from, York lists seven important objectives that need to go into any successful strategy. It is necessary to have a successful strategy because 30% of millennials, in 2018, reported engaging with a brand on social media at least once a month and it is not good enough anymore to just have a social media account but do nothing with it aside from putting the business’s name and trademark on it [33]. It may surprise those who are unfamiliar with social media, but a lot of work must be put in to effectively use social media.

First, it is necessary to truly know what the business hopes to get from expanding their business on to social media. Setting up manageable goals and writing them out helps companies see where they are improving and how close they are to achieving their ultimate goal. These goals can include increasing brand awareness, driving in-person sales or creating a loyal fan base by using social media to connect to their potential customers.

Following this, the business must understand its audience is needed to know important information, including what products consumers like, what age group often shops or does not shop at the store [33]. This can be from knowing what gender uses a certain social application more, what age groups tend to respond the most positively to the company's posts or learning the general vicinity their followers live. With this knowledge, business owners will have a better idea as to who to advertise to and how they should do it.

However, this leads to the third objective which is determining how much engagement that the business and its followers have on these social media sites. This is important as the amount of comments, clicks and even hashtags used for the social network can give business owners an estimate as to how far the company is reaching in each social media platform.

The fourth objective is to look and learn from competitors that are using the same social media platform to advertise their business. Instead of looking at big companies, it is important to look at those who have a similar type and size of business. This gives other small businesses a look into how similar businesses are finding their audience and the improvements and mistakes they made to improve their overall presence on the media

platform. While this will not prevent businesses from making different kinds of mistakes, it can help them avoid choices that will negatively impact their business.

The fifth step towards a successful social media strategy is giving the business's customer base the correct content. This does not always mean promoting products, as 46% of users reported that they will unfollow a brand if there are too many promotional messages [33]. Whether it be videos on how to use certain products or relevant pictures that fit the theme of the business, businesses need to give their followers a reason to continue to look at both the shopping website and social media page.

The sixth step is to show customer care by interacting with them on the social platform. Before the social media channel became a place for small businesses to flourish, it was a network whose "main purpose is to be a space to converse, discuss topics and share content" [33]. Whether it be someone asking for customer support or commenting on a post, it is important to address the customers so that they feel they can trust not only the business owner, but the business itself.

The last objective in the strategy is to find out how well social media sites have been in getting the business's name out and generating new customers. It is important to keep track of the progress made on social media sites so that business owners know which platforms did better than others and how certain decisions affected their overall business. Continuing to use social media as a tool to build strong, lasting relationships increases the overall success of the business and can lead to a greater longevity for the company.

Because of how large social media has become, it makes sense that more thought and

time is needed in order to effectively use it, whether it be for business or personal means. It makes sense that social media stretch beyond just being a platform for people to use to communicate or create businesses. However, like any kind of online system, there are risks that all users will be involved in, regardless of how careful they are.

### **Risks of Social Media Usage**

As humans, it is natural that we will make mistakes, and this inclination is sometimes even more dangerous when it comes to using the Internet. Whether it be sending an email to the wrong person or accidentally tagging the wrong person in a post, it can sometimes be alright as the information that is sent is nothing for either to worry about. However, it is those other times, when people are exposed to information that is offensive or disturbing, that social media can become a dangerous and possibly negative influence. It is possible to experience things from cyberbullying to accidentally stumbling on to porn by typing in a website incorrectly or clicking on a post that was sent by a friend.

Another issue that has come up due to social media's popularity is that sometimes people post comments and pictures on social networking sites and do not realize the long-term implications that the post can have. Since "information they post online is stored and accessible for years to come", it is possible for companies to see these posts and, if there is a rather negative or inappropriate post, this could make them reconsider hiring an individual [19]. The same can be said for those that the user decides to list as 'friends' on their social networking sites, since these 'friends' can tag the user in any post they want and can give potential employers the idea that the user is similar or thinks the same way as these people.



This could mean that if someone tags another getting drunk or taking drugs then this reflects on both parties, not just the person that posted it.

Users can sometimes have a misunderstanding as to how much privacy they have when using social media. Social media is not different enough to where they do not fall under the same rules that the Internet has, and one of its biggest rules is that anything that is put online will likely be permanent and be forever imprinted within the virtual platform. When a user posts a picture or video on any kind of social networking site, they “essentially give up their privacy and data to SNSs in order to be a part of the online society” [19]. Social media users should always be aware of the kinds of trouble they can get into because of what they post online.

There are even legal examples of these kinds of incidents. In *Romano v. Steelcase Inc.* (2010), the plaintiff was accusing Steelcase Inc. of causing her permanent neck and back injuries. However, the defendant had found a video on her social media accounts of her wedding, which took place two years after the incident. Wanting to use this information to prove that the plaintiff was not as injured as she claimed, the defendant wanted to access the plaintiff’s social network accounts, which included Facebook and Myspace, in order to get this evidence. The plaintiff tried to argue that this was an invasion of privacy and that it violated her privacy rights. The Court rejected this argument on the grounds that the plaintiff publicly posted this material on the sites with the purpose of sharing personal information [19]. In this case, Ms. Romano should have thought about what posting this kind of information would do to her case against Steelcase Inc.

Another example is in *State of New York v. Harris* (1990), where the Criminal Court

of the City of New York ordered a subpoena on Twitter Inc. so that they would release Harris's Twitter information, including any posts he made on the site, and the time and place he had made these posts. While both Harris and Twitter attempted to quash the subpoena by saying that it was a violation of the Fourth Amendment, the judge denied it because the defendant "had no standing to challenge the subpoena himself and rejected Twitter's arguments that such a conclusion placed an unreasonable burden" [34]. Because of the nature of social networks, it was discovered that tweets are "particularly valuable as evidence in determining the status of the defendant" because of how the system stores the times and locations of their users when they post content on the social network [19].

Another case that made an important decision on the privacy of social media was *Dimas-Martinez v. State (2011)*. In this case, "a juror was Tweeting about the case during the trial, and this played a large role in the court's decision to overturn a death penalty conviction" [19]. This action affected the fairness of the trial and how this was even worse than discussing the trial to someone else in person. This demonstrates how much of an influence social media has on our overall society if its use is considered to be infringing on a person's rights or impacting due process.

Outside of privacy problems, another issue that is present within social media is cyberbullying. Unfortunately, social media has become a large platform for bullies to use to get to their victims while hiding behind a computer. Cyberbullying is described to be "using the Internet, cell phones, or social media to communicate false, embarrassing, or hostile information about someone else" [19]. Cyberbullying can include many characteristics of regular bullying, such as calling people names and spreading rumors, but, because of how

easy it is for people to make accounts on social media sites, it is very simple for someone to create a fake profile to harass another person. This can result in someone either being bullied by one or an entire gang of people that hide behind their computers and fake accounts, making it hard for the person to determine who is targeting them. It is also possible that the bully can create a fake profile of their victim and use it to humiliate the victim with degrading and ridiculous comments. The worst part is that, because social media is available at any time and any place, the bullying is not just taking place at school, but is constantly hurting the victim, which can potentially cause more harm than normal bullying. The use of fake accounts has contributed to two rather big issues: misleading information and unwanted sexual encounters. On the business side of social media, companies look to see who is commenting and wanting more of their products. However, fake accounts that have equally fake ages, genders or even locations can mess up a business that wants to improve themselves by being consumer-oriented. Some users deliberately create fake accounts in order to mess with businesses by leaving confusing comments on the company's posts or even promoting a completely different store in the comment section. While companies do have the ability to block these kind of users, it is just as easy for those same users to create another account and continue to harass the business under a different name.

While this kind of behavior may not lead to anything unsavory in the real world, it is when fake accounts get users into unwanted sexual encounters that it is dangerous to both parties involved, even more so if a user is not at least eighteen years old. While children may not see any harm in faking an account in order to be on the social media website with their friends, it can be hazard if either they end up talking to an adult they do not really know or if

their friends send them videos or pictures of inappropriate content and ask the user to do the same. While both issues are hard to deal with, it is even harder when it comes to an unknown adult individual making sexual advances on someone, especially on children who are unaware of the danger they could be in. In some ways, it makes sense that children do not understand how terrible the situation can get when encountering sexual predators online since predators will often act friendly and sociable towards the children [19]. Social networks have attempted multiple methods in order to try and prevent these kind of incidents. The best example of this is Facebook, which not only requires all users to be at least thirteen years old to make an account, but it also has a scanning software that looks to see if there is any inappropriate conversations between a teenage user and adult user. For example, in 2012, the software was able to identify an inappropriate, sexual conversation between a thirteen-year-old girl and a man in his 30s, which later resulted in the man's arrest [19]. But even these steps aren't enough since users do not need to proof of their age and the scanning software is not perfect, so it is still possible for sexual solicitation to occur.

Lastly, because of how influenced people are by the information they are presented in social media, it is possible that misleading information will cause misunderstandings for users who do not look to make sure that the post or article is true. No matter if the user is an adult or young teen, both can make the mistake of taking information they find at face value and just trusting the post instead of doing more research in order to determine what is fact and what is false.

# **LINKING SOCIAL MEDIA AND ONLINE AUCTIONS**

## **Issues with Combining Social Media and Auction Systems**

While social networking and online auction systems have some similarities and it is possible that they can integrate with each other more than they currently do, it is still difficult to do when considering the technical and business aspects of the system combination. This is mostly because the systems between auction sites and social networks are so different that it is hard to determine a algorithm that can correctly translate one site's data to the other. The actions and information that one service looks for may not be exactly the same as the kind of information and actions that another service needs, and, while it could be possible to translate codes so that both systems understand each other's code, it would require a great amount of recoding and, even then, it still may not work as efficiently as it could.

## **Coding Conflicts**

It is necessary to understand that, while online auctions and social media sites are both information systems, they maintain and disperse information differently from each other. Online auction systems usually only store data on their users' behaviors, while social networking applications look at each user's behaviors, location, time and the kinds of people and groups they follow. The difference in data between both systems means that one system will be confused with the amount of data they are receiving and the other will be unable to improve due to the small amount of data they receive from the other. While solutions have been made to be able to connect two or more different social networking accounts, as shown by Pinterest, this is due to the fact that while "the two comparing networks are not

completely identical, most of them concern similar characteristics” [35]. However, when comparing online auction systems with social networking sites, “the gap between the domains defeats most of the well-known account matching algorithms” making it much harder to try and find a similar variable to connect each system to. And this is where the algorithm problems begin to arise [35].

Merging algorithms is difficult due to the nature of both systems and how they recall information. In order to be able to share information, both systems would have to be able to translate the data they collected and make it make sense to the other program so that the data transfer is possible. However, “it is difficult to extract key features from one type of web services, and conceptualize them to describe the account of a completely different type of services with a proper explanation” [35]. Certain tasks and actions must be performed in order for the data to be shared, but these requirements are not universal between the systems, and this could lead to a system not being able to understand information gathered from a completely different system. In order to get past this problem, a new algorithm must be made that follows a different kind of model that is able to handle both systems data and figure out how best to match certain data together. Not to mention, new coding has to be added that allows for users to know about the possible linking and sharing of information so that they can choose whether or not they want to do it, instead of sharing information and linking accounts behind every user’s back.

## **The Dotcom Crash**

Another issue to consider is that both companies, if merged together, could create another tech bubble burst, also known as the dotcom bubble, which had previously occurred back in the beginning of the 21<sup>st</sup> century [36]. Many companies had been popping up more and more as the internet became more of a source for businesses to blossom in the ever-increasing technology-centered world. However, stocks began to plummet and both investors and internet-based business owners began having to close their virtual doors by the hundreds. This mass of failing businesses is often attributed to the large amount of internet business that were popping up at a rate that was too fast to keep track of. This event occurred between March 11, 2000, and October 9, 2002, and Beattie reported that NASDAQ seemed to suffer the most from this as it “lost 78 percent of its value as it fell from 5046.86 to 1114.11” [37]. Geier reported that NASDAQ suffering could be seen from the very beginning of the crash, as it had at \$6.71 trillion the day before the bubble burst, but in just 2 weeks its value dropped to \$6.02 trillion [38]. In this instance, online auction websites had set back not only technology, but the business industry as well. When checking the gross domestic product annual rate, Amadeo reported that it had only increased by 4.1 percent, which is less than the previous year’s GDP annual rate of 4.7 percent and would not be good for the coming years as both the 9/11 attacks and the Iraq War would create a rather big dent in the GDP [36]. It is possible that, if our society is not careful, there could be another crash in the internet business.

### **Positive Similarities between Both Systems**

While social networks are completely different from auction system websites, they

are both heavily influenced by the large amount of people that visit and use their sites on a regular basis. If these two services were able to combine and use the data from their users, it could lead into another technological revolution, as shopping services could predict what a consumer may buy and social networks can match people together based on what they buy. First, since they are both information systems, social media and online auction systems have similar data-collecting features that could allow them to be integrated together through those aspects. While they do store different kinds of information, the information they gather is based on their consumers and gives them an insight as to what their users are interested in. As a result, both systems are able to possibly spot trends and to discern what certain users will like and dislike.

Another similarity is that consumers and users of both systems heavily influence both applications and are the main reason for why both systems have been able to gain so much success. Without users displaying what they like and dislike about the system's design or how users continue to come back for future purchases, these systems would have failed pretty early into their launch. Luckily, the systems were able to satisfy their users and learn what would make their sites more easily accessible for their continually-growing customer audience.

From the economic standpoint, they both have helped businesses, whether big or small, in order to expand further and have also encouraged business growth in general. Online auctions have allowed for people to create their own shops that sell either items that others around the world will want or a service that is helpful to the consumer and financially beneficial to the sellers of the service. Even the ratings systems that are used in many online



auctions have provided business not only a good source for learning how to improve their business, but also, if the business provided good service, other users are able to show other users that the site was reliable and satisfying. Businesses have also used social media to get their shops and services noticed by more people and this has allowed small businesses to thrive for much longer, which does affect the overall economy.

As previously mentioned, both systems affect their user's psychology and can influence what they buy and this also affects the economy as business's focus on following the consumer's trends. Shopping trends heavily influence what shoppers and bidders will buy and for what price. The nature of online auctions systems requires that people develop a certain level of trust for the system and the sellers that use it. With social networking, simple posts from friends or even a trending video or comment can influence people across the world to the point where it can develop people's points of views on subjects or even help the user figure out what kind of person they want to be in life or the kind of personality that best fits them.

### **Using Networking in Online Auction Systems**

Both systems have already shown that there is a way to integrate themselves into different networks, even if it is currently in very small areas. For example, certain websites or mobile applications allow people to login with their Facebook profiles when creating an account. This is not only an easy way for people to create an account, which would bring up customer satisfaction, but it also allows for the sites to display that the individual uses their application on that user's pages. So in a way this is also a free advertisement for the website and could entice the user's friends and followers to want to shop at the site.

When consumers on online auction make purchases or search for a specific product, this information is relayed to advertisers. The advertisers see this and, if they are able to make a connection between a consumer's online auction account and their social networking account, the advertisers will have their advertisements tailored for that user and the advertisements that appear on social networking sites will attract the user to buy either similar products or go to certain online shops to make future purchases.

For auction systems, it is very profitable to gather the data on what is on a user's account and the actions they take on certain posts. This data could be used to help advertise products to the user that they will actually like. Not to mention, this data can also help online shopping websites "predict the purchase behaviors of the same person in online shopping sites" [35].

For social networks, the data from online shopping websites can also help improve their own system, as well as their users' experience. This is especially necessary since quite a few people shop on online auction systems for cheap, but reliable products and resources. With this data, the social websites can better determine the kinds of people that could be friends based on their shopping habits. The data can also help "cast customized advertisements with a higher precision" [35].

## CONCLUSION

At this point, the benefits of social media platforms and online auction systems cooperating with each other shows how they not only can improve themselves, but perhaps also the broader national economy. However, as discussed before, this kind of data combination requires a new model and algorithm in order for both systems to be able to understand and use the data to the best possibility. The best model to use is “a game-theoretic method to identify account pairs between social network sites and online shopping sites” [35]. Then this model has to follow the stable matching method. This method is usually a very general method of matching objects in lists and it should be able to “abstract the domains or characteristics of an account into certain utility functions, which might be a way to connect two otherwise very different types of objects” [35]. For this to work, “it requires that each node has a strict ordering of preference list over the opposite nodes” [35]. This is even more complicated with social networks and online shopping since any kind of information either system gets is from user profiles and the behavioral history of each and every user. This is more difficult to determine since online auctions only record their users’ behaviors, unlike social networks, who focus more on the information found on user profiles and the time and place each user’s posts. Despite these differences, the systems can use user’s information to make the matching process much easier. This includes how people tend to use either the same, or very similar, usernames across multiple Internet sites. Seeing if certain profiles share the same e-mail, or recognizing the relationship between user interests could be used to predict users’ likes [35]. If a match is found, then it is possible that not only could online auctions and social networking sites become linked, but it could also lead to a

way to determine purchase behaviors of users based on what they are currently liking or searching for in either system.

Even without this sort of system, other research has been done that shows that the combination of “both user-item rating dataset and other contextual information”, such as who users trust on social networks and what times they are on social media, was more accurate than expected [35]. One report “combined the feature of Twitter followers, and generated a much more accurate estimation of how likely a target user would purchase an App” [35].

However, to ask these different systems to work together completely may not be possible currently as they still need to determine the best way to work together so that each company is able to make a profit. Therefore, it is recommended that both systems consider to slowly start learning the best way to share information between themselves to turn a better profit and appeal to a larger audience. This includes how to best translate each other’s data sets so that the other system is able to properly match data together and to correctly predict future user behaviors and any kind of trend changes that may occur in the near future.

First, for social media platforms, sharing very basic information, such as the user’s age and gender, and the pages, groups, and people they follow will help online auction systems better advertise products to suit each user better and could help predict the next product that will become popular among the populace. If this were to happen, both platforms could see an increase in profit just by seeing “a person’s profiles and actions in social networks to categorize or even predict the purchase behaviors of the same person in online shopping sites” [35].

As for online auction systems, it is necessary that they should enable methods to allow for users to login through social media platforms and share what certain users are buying online with social media platforms. This encourages more economic growth through more spending, and this additional feature could lead to more user satisfaction. While the sales tax questions that surround online auctions are still problematic and could cause issues with the economy if a solution is not found soon, online auctions are already helping the economy in some ways by allowing more people to create their own businesses and giving small businesses more of a chance to survive against bigger corporations.

There are a number of legal implications that may impact both systems, ranging from privacy to implementation of taxes for online companies. But it is also possible that the combination of both systems could also lead to a more innovated security system that could potentially fix the problems that online auctions and social media face when it comes to keeping their users' information secure.

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## **BIOGRAPHY**

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